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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,778	09/29/2000	Lars Langemyr	CMM-00101	8229

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EXAMINER	
SHARON, AYAL I	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/675,778	LANGEMYR ET AL.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-87 and 89-101* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-87 and 89-101* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/13/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1, 3-87, and 89-101 of U.S. Application 09/675,778, originally filed on 09/29/2000, are currently pending.
2. The application claims priority to provisional application 60/222,394, filed 8/2/2000.

Drawings

3. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. The following rejections are based on Annex IV of the "Interim Guidelines for Examination of Patent Applications for Subject Matter Eligibility" (hereinafter "Interim Guidelines"), effective Oct. 26, 2005, and posted on the USPTO official website at the following URL:

http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html

6. **Claims 1, 3-87, and 89-101 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a "**useful, concrete and tangible result.**" According to p.4 of the Interim Guidelines,

> The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 (1966)); In re Fisher, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); In re Ziegler, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

The test for practical application as applied by the examiner involves the determination of the following factors:

a. "**Useful**" - The Supreme Court in Diamond v. Diehr requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

3. the utility need not be expressly recited in the claims, rather it may be inferred.

4. if the utility is not asserted in the written description, then it must be well established.

b. "**Tangible**" - Applying In re Warmerdam, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In Warmerdam the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized. See MPEP §2106 (A). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459.

c. "**Concrete**" - Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

7. Claims 1-101 do not produce a tangible result.

Response to Amendment

Claim Rejections - 35 USC § 101

8. In regards to the 35 USC § 101 rejections of claims 1-101 because the claims were directed to functional descriptive material, Examiner finds that the

amendments to the claims filed 7/25/2006 have overcome the rejections. The rejections have been withdrawn.

9. In regards to the 35 USC § 101 rejections of claims 1, 3-41, and 82-91 because the claims were inoperative, Examiner finds that the amendments to the claims filed 7/25/2006 have overcome the rejections. The rejections have been withdrawn.

10. In regards to the 35 USC § 101 rejections of claims 1, 3-87, and 89-101 for the lack of a concrete, useful tangible result, Examiner has maintained the rejections.

11. Examiner respectfully disagrees with applicants' argument that the amended independent claims 1 42, 82, and 92 "now clearly recite a tangible result, i.e. the output of a model." (See Applicants' remarks filed 7/25/2006, p.18).

12. More specifically, The applicants argue (emphasis added): "[t]he output of a generated model to solve a scientific and engineering problem or problems is clearly a beneficial result or effect. **By way of example only**, the generation of such a simple exemplary model for the addressing problems with the transmission of frequencies in the microwave range in a waveguide for the telecom industry is discussed on pages 67-73." (See Applicants' remarks filed 7/25/2006, p.18).

13. Examiner finds that applicants' argument reinforce Examiner's position that the instant claims also lack a concrete, useful, and tangible result, and are directed to an abstract idea.

14. The claims in the instant application are directed to an abstract idea. One may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect be a patent on the [idea, law of nature or natural phenomena] itself." Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

15. As per Gottschalk, the applicants' claims attempt to preclude every "substantial practical application" of an idea – in this case, mathematics. The instant claims "*form [a] combined set of partial differential equations using the determined sets of partial differential equations associated with said one of said plurality of systems*". The claims then output "*a model based on a combination of ... sets of partial differential equations ...*". The claims are so broad as to preclude every practical application of the idea.

16. Moreover, the applicants argue that "By way of example only, the generation of such a simple exemplary model for the addressing problems with the transmission of frequencies in the microwave range in a waveguide for the telecom industry is discussed on pages 67-73." This argument supports Examiner's assertion that claims are so broad as to preclude every practical application of the idea.

17. In addition, the instant claims lack a concrete, useful, and tangible result.

18. The fundamental test for patent eligibility is to determine whether the claimed invention produces a "**useful, concrete and tangible result.**" See State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F. 3d 1368, 47 USPQ2d

1596 (Fed. Cir. 1998) and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999). In these decisions, the court found that the claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result."

19. See State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. ("[T]he transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' – a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades").

20. See also AT&T, 172 F.3d at 1358, 50 USPQ2d at 1452 (Claims drawn to a long-distance telephone billing process containing mathematical algorithms were held patentable subject matter because the process used the algorithm to produce a useful, concrete, tangible result - a primary inter-exchange carrier ("PIC") indicator - without preempting other uses of the mathematical principle).

21. The instant claims, on the other hand, do not produce such specific,useful, tangible results as in State Street and AT&T. Instead, they produce a mathematical "model", which is so broadly defined that it lacks utility and tangibility.

Claim Rejections - 35 USC § 112

22. In regards to the 35 USC § 112, first paragraph rejections of claims 1-101 because of lack of enablement, applicants have persuasively argued (See amendment filed 7/25/2006) that there is support in pages 56-59 of the specification, and also in Figs. 22 and 23 of the instant application. The rejections have been withdrawn.

23. In regards to the 35 USC § 112, second paragraph rejections of claims 1-101 because the claims were ambiguous due to the multiple uses of the term "system", applicants' amendments to the claims have overcome these rejections. The rejections have been withdrawn.

Claim Rejections - 35 USC §§ 102, 103

24. Examiner has found applicants' arguments regarding the 35 USC §§ 102 and 103 rejections (see pp.20-21 of the amendment filed on 7/25/2006) to be persuasive. The rejections based on the FEMLAB 1.0 product documentation have been withdrawn.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
September 7, 2006

PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100